



## REMOTE MD95100 DIGITAL HOT METAL DETECTOR



Controller in mounting Cradle

Remote Lens mounts

- Fully Digital programmable “All-in-One” Design
- Bar Display shows IR Signal relative to Trip Level
- Programmable 340°C to 700 deg C Trip Level
- 110 VAC or 24 VDC connection in one unit, 220 VAC optional on request
- Remote Spot Lenses Options: 1°, 2°, 4°, 7° F.O.V.
- Remote 1° x 25° F.O.V. precision slit F.O.V.
- High Temp lens ratings of 180°C, 400°C or 1000°C.
- Both Cradle and Fast Reed Relay Outputs.
- Both NPN and PNP Transistor Outputs
- Programmable response time from 2 to 200 ms
- Remote Self-check facility.
- Lens mounts with air purge and air/water cooling

### General Description

The MD95100 fully digital Remote “All-in-One” Hot Metal Detector incorporates a Bar Display showing the IR input signal relative to the pre-set trip level as a linear % as well programmable thresholds and response times via similar switch action.

The MD95100 utilizes a modular digital Controller in protective mounting Cradle, flexible armored optic leads and interchangeable Remote Lenses. One Controller used in conjunction with the Lens options available means one standard Controller can be used throughout the mill. Now there is no need to stock a detector for each different trip level or requirement. Costly multiple inventory can be replaced with this one Detector

A wide variety of remote lenses impervious to water & steam built to withstand the harshest environments available. Used in conjunction with flexible armored optic lead, these lenses provide a high level of optical accuracy by allowing the selection of the ideal lens arrangement for the installation. Robust lenses with temperature ratings of 180°C, 400°C and 1000°C mount close to the hot product. Various robust lens mounts are available including air purged, air purged with air cooling and air purged with water cooling.

Remote lenses incorporate filters to minimize sensitivity to extraneous light. For general tracking, spot lenses are commonly used. Where high accuracy required or the product deviates about the center line (i.e. Rod Mill) a 1° x 25° precision slit rectangular lens should be utilized. This lens is also highly suited to Strip Mills. Also available is the 1000°C Shrouded Quartz Rod Lens, specifically engineered for mounting in the harsh and high ambient environment below the line or inside the mill stand.

Red LED's - Hot product % IR Signal  
Relative to set Trip level & setting levels

Blue LED - Power & Self Check Failure

Yellow LED - Switching set

Yellow LED - Self check Confirmation

Upper setting switch

Lower setting switch



Controller shown out of Cradle

**LED Bar Display** allows the user to clearly establish the amount of received IR both from the background metalwork and the bar being detected to thereby establish the correct trip level required.

One LED in this display also allows the user to align the Detector of a low energy source (torch), which normally would be insufficient to switch the Detector.

Adjustment of both the threshold and response time is also clearly defined by this bar display

## MODULOC<sup>®</sup> Technology - The Total Sensor Solution

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## REMOTE MD95100 DIGITAL HOT METAL DETECTOR

### General Information

#### Remote Electronic Controller

**Housing:** Aluminum AL6, Oven baked black paint

**Housing Rating:** IEC IP66, DIN, 89011

**Weight w/o Cable:** 1.7 Kg

**Connector:** IP65 Plug/Socket

**Cable Length:** 2 M

#### Remote Lenses:

**Precision Rectangular Slit:** FOV: 1/2° x 5°, 1/2° x 10° & 1/2° x 25°; rated 160°C.

**Stainless Rectangular Slit:** FOV: 2° x 15°; rated 180°C or 400°C.

**Stainless Tubular Spot:** FOV: 1°, 2°, 4° or 7°; rated 180°C or 400°C.

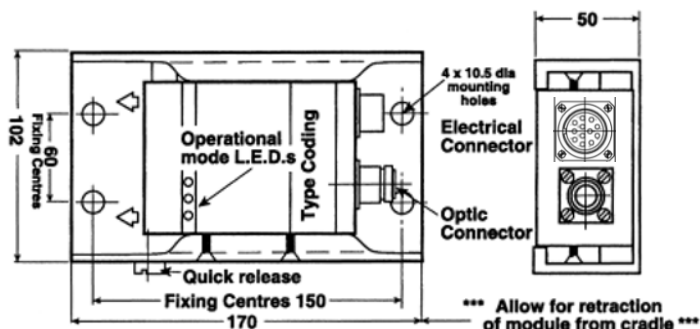
**High Temperature Quartz Rod:** FOV: 1°; rated 1000°C.

#### Optic Cables:

Armored Stainless Sheath available in lengths from 2 meters to 15 meters in 1 meter lengths; rated 400°C.

### Dimensions

#### Model MD95100 Remote Electronic Controller



### General Specifications

Sensing Element	InGaAs Diode	Supply Voltage	<b>Standard:</b> 110 VAC ± 15% 50/60 Hz or 24 VDC ± 15% <b>Optional:</b> 220 VAC ± 15% 50/60 Hz
Power Indication:	Blue LED	Power Consumption	5 VA
Function Indication	Outer Yellow LEDs	Operating Temperature	-20°C to +60°C
% I. R. Signal	Red/Green/Red LEDs	Storage Temperature	-25°C to +75°C
Remote Self-Check	Middle Yellow LED	Output (#1)	Cradle Relay, SPNO 240 VAC, 8A, 20ms response rated
Min/Max I.R. Threshold settings	Down to 340°C and up to 700°C via programming switch	Output (#2)	Reed Relay, SPNO 240 VAC, 0.5A, 2ms response Rated
Response Time:	2 msec. min to 200 msec max., via programming switch	Output (#3) and (#4)	PNP and NPN Outputs, N.O. 0.5A, 24 VDC, 2A peak

#### Alternative Temperature Diode Options

##### High Gain Diode

- Minimum temperature 225°C, maximum temperature 600°C

##### Silicon Diode

- Minimum temperature 570°C, maximum temperature 1100°C

#### Smallest Detectable Product when utilizing a 1/2° x 25° Lens

The table to the right identifies the minimum % of vertical field of view required with hot steel at stated temperature for it to be repetitively detected.

Indicative Preset Thresholds		
Steel Temp.	Nominal 350°C Preset Trip	Nominal 450°C Preset Trip
400°C	10%	Not Detectable
450°C	5%	100%
500°C	1%	60%
600°C	1/2%	20%
800°C	Less than 1/2%	Less than 5%

#### EU & USA Wire Diagram

Pin	EU	USA	Function/Rating
(1)	Pink	Pink	Self-Check - Single wire to +24VDC internal line Pin (2)
(2)	Red	Red	+24 VDC
(3)	Brown	Black	110VAC Supply Line Hot (L1)
(4)	Blue	White	110VAC Supply Line Neutral (L2)
(5)	Violet	Violet	PNP Transistor Output – 24VDC 2A peak 0.5 to 0.75A Reverse/thermal protected (Internal line Pin (6) 0 VDC)
(6)	Black	Blue	0 VDC (For 24 VDC Supply)
(7)	Green	Green	Ground * CONNECT*
(8)	White	Brown	C/0 ('C' Form) Cradle relay –Common– 8 Amp – 250 VAC Rated
(9)	Orange or Grey/Pink according to cable	Orange or Grey/Pink according to cable	C/0 ('C' Form) Cradle relay – N/O – 8 Amp – 250 VAC Rated
(10)	Light Blue or Red/Blue according to cable	Light Blue or Red/Blue according to cable	NPN Transistor Output – 24VDC 2A peak 0.5 to 0.75A Reverse/thermal protected (Internal line Pin (2) +24 VDC)
(11)	Yellow	Yellow	Reed Relay Common - 0.5A - 240 VAC Rated
(12)	Grey	Grey	Reed Relay O/P NO – 0.5A - 240 VAC Rated

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